



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/760,374

01/21/2004

Yuu Ishii

Q78752

9826

23373 7590 12/18/2006
SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

PETKOVSEK, DANIEL J

ART UNIT

PAPER NUMBER

2874

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|-----------|---------------|
|--|-----------|---------------|

3 MONTHS

12/18/2006

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/760,374

Applicant(s)

ISHII ET AL.

Examiner

Daniel J. Petkovsek

12/7/06

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on RCE amendment filed December 5, 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 2-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 15-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on March 2, 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This office action is in response to the RCE amendment filed on December 5, 2006. In accordance with the amendment, claims 1 have been broadened. Claims 1-22 are pending (claims 2-14 previously withdrawn from consideration as being a non-elected group).

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 5, 2006 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 15-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pianciola et al. U.S.P. No. 6,701,046 B1, and further in view of Donno et al. US 2002/0136508 A1.

Pianciola et al. U.S.P. No. 6,701,046 B1 teaches (Fig. 1; column 5, line 35 through column 6, line 8; claims) an optical fiber coupler comprising: a plurality of optical fibers including a λ_1 -band optical fiber and a λ_2 -band optical fiber, fused together at a fusion-elongated portion, wherein the two bands (λ_1 and λ_2) are different from one another, in which elongation is

Art Unit: 2874

used during the fusion splicing of the fibers. Pianciola et al. '046 does not explicitly teach that the propagation constant difference between the optical fibers is 10^{-4} rad/um or smaller **when** these fibers *happen to be* at an elongation ratio in a range of 50% or less.

Donno et al. '508 teaches (ABS, [0036]-[0037], claims 1 and 4) an optical fiber coupler comprising: a plurality of optical fibers including a λ_1 -band optical fiber F1 and a λ_2 -band optical fiber F2, fused together at a fusion-elongated portion G, wherein the propagation constant difference between the optical fibers (F1 and F2) is 10^{-4} rad/um or smaller (see [0037]; claim 4). Since the propagation constant difference is 10^{-4} rad/um or smaller, it is inherent that, if the optical fibers *were to be* (emphasis added) fusion elongated in a range of 50% or less, the propagation constant would still be less than 10^{-4} rad/um. There is no indication in the prior art that propagation constants would increase over the claimed threshold due to different elongation ratios.

Since Pianciola et al. '046 and Donno et al. '508 are both from the same field of endeavor, the purpose disclosed by Donno et al. '508 would have been recognized in the pertinent art of Pianciola et al. '046.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use similar fibers to create a very low (and beneficial) propagation constant, as taught by Donno et al. '508 for the purpose of decreasing optical error in the very similar coupling arrangement of Pianciola et al. '046.

Regarding claims 15-22, Pianciola et al. '046 and Donno et al. '508 do not expressly disclose the particular conditions for the operating wavelength, radius of the cores/claddings, or

Art Unit: 2874

relative refractive index difference between a multi-core fiber and its cladding. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to recognize the use of multi-core fibers, single mode fibers, and fibers having very low refractive index difference and/or low band ranges, since these further limitations are using different types of well known fibers in the art to couple optical signals into the coupling region of claim 1. It has been held that where the general conditions of claim (independent claim 1) are disclosed in the prior art, discovering the optimum or workable ranges (using particular fibers (multi-core or otherwise from claims 15 and 18)) involves only routine skill in the art. *In re Aller*, 105 USPQ 233. The use of these well known fibers in the art would have been recognized as workable ranges or materials in view of the teaching of Pianciola et al. '046 and Donno et al. '508 in view of independent claim 1. It is noted that claims 15 and 18 are branching claims of independent claim 1, with claims 16, 17, and 19-22 further dependent upon these branching claims.

Response to Arguments

4. It is noted by the Examiner that Applicant has broadened the claim construction of sole independent claim 1 with the amendment filed December 5, 2006, by removing "wherein the fusion... elongated portion,". The Examiner is unsure if this was intended, since broadening a claim may be a basis for lack of support. Applicant does not mention the broadening amendment in the remarks. The Examiner would greatly appreciate a response on this matter.

5. Applicant's arguments filed December 5, 2006 have been fully considered but they are not persuasive. Applicant asserts that the combination of Pianciola et al. '046 and Donno et al. would not reasonably suggest the propagation constants *when* a particular elongation range is

Art Unit: 2874

asserted. However, Applicant does not positively claim this elongation ratio, since the desired propagation constant is an intended result of a particular elongation ratio. The language “when” suggests a theoretical test value that may, **or may not**, be applied. Further, from the combination of Pianciola et al. ‘046 and Donno et al., a person having ordinary skill in the art would have recognized that, *when* a particular elongation ratio of 50% or less *were* to be used, the propagation constant of 1×10^{-4} rad/um or less would have been recognized. This is because elongation is described, and all values of the propagation constant are less than 1×10^{-4} rad/um.

Conclusion

6. This is a RCE of applicant's earlier Application No. 10/760,374. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Art Unit: 2874

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Petkovsek whose telephone number is (571) 272-2355.

The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Daniel Petkovsek
December 7, 2006


SUNG PAK
PRIMARY EXAMINER